

California Integrated Waste Management Board

Site Investigation Work Plan
Old Bryte Landfill
AKA: West Sacramento Landfill
Yolo County



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SWIS # 57-CR-0002
West Sacramento Bryte Landfill

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1. Introduction

The California Integrated Waste Management Board (CIWMB) Closed, Illegal and Abandoned Site (CIA) program investigates solid waste disposal sites and provides site data and documentation to quantify requirements for both enforcement and potential clean-up activities by the CIWMB Solid Waste Cleanup Program (AB 2136). Depending on the types of wastes at the site, intrusive investigation and environmental sampling may be necessary to determine if hazardous materials are present for the purpose of scoping enforcement and remediation work or referral to either the Regional Water Quality Control Board (RWQCB) or the Department of Toxic Substances Control (DTSC).

Typically, municipal burnsites contain heavy metals such as lead, copper, nickel, cadmium, chrome and zinc. Other metals such as copper, iron and aluminum may also be present. Other constituents of concern may be total petroleum hydrocarbons (TPH) as benzene, toluene, ethylbenzene and xylene (BTEX) or diesel, organochlorine pesticides and polychlorinated biphenyls (PCBs), Dioxins and Polynuclear Aromatic Hydrocarbons (PAH). Also depending on industrial and commercial or Department of Defense activity in the area, low-level radiation-emitting sources could be a concern.

Statutory Authority for investigating solid waste disposal sites is in California Public Resources Code (PRC) Section 45013, ET seq.

1.1 Site Location and Description

The Bryte Landfill AKA (West Sacramento Landfill), SWIS #57-CR-0002, APN 042280111: Located at 50035 County Road 126, West Sacramento, CA. On the Northeast Quarter of section 25 in Township 9 North, Range 3 East. The site is approximately 16.69 acres. The site is covered with various types of bushy vegetation and has numerous groves of small trees, along with blackberries and poison oak.. An irrigation ditch borders the northern side of the Bryte property. The southern side is bordered by a levee and on the other side of the levee is a slough. The western side is up against a flood channel and the eastern side is the entrance to the property.

The site is relatively flat but has areas of build-up, possibly the location of buried waste. A small ditch runs along the inside bottom of the southern length of the site. Scattered metallic debris is littered throughout the area with occasional piles of demolition waste, agricultural metallic products, and some household waste such as children's toys etc. Broken glass is visible under the grassy vegetation and the evidence of burning is present. In the historical documents there is mention of a house, it has been demolished and is no longer on the site. A half torn fenced area remains on the northeastern side of the property close to a grove of trees where an abandoned car now resides. Along with the fence, broken pieces of concrete are piled along the bank of the irrigation ditch. There are also several empty 55-gallon drums scattered throughout the site.

This Aerial is of the Bryte Burnsite. The left side of the parcel is the flood control channel. The Riparian section on the southern end of the site, which follows the horizontal direction of the site, is a slough that feeds into an irrigation canal. The right portion, which seems to be its own parcel, is not the site in question. Also between the small rectangle and the site (large rectangle) is a pumping station used for irrigation of the surrounding fields. The upper portion of the site is the irrigation ditch, which runs horizontal on the northern half of the site. Access is from a levee road.



Site Security

Site security is a locked gate, which blocks the entrance to the levee road. The LEA and Mr. Purwall have the key to this gate, site access will have to be obtained.



Bryte/West Sacramento Burn Site

50035 County Road 126

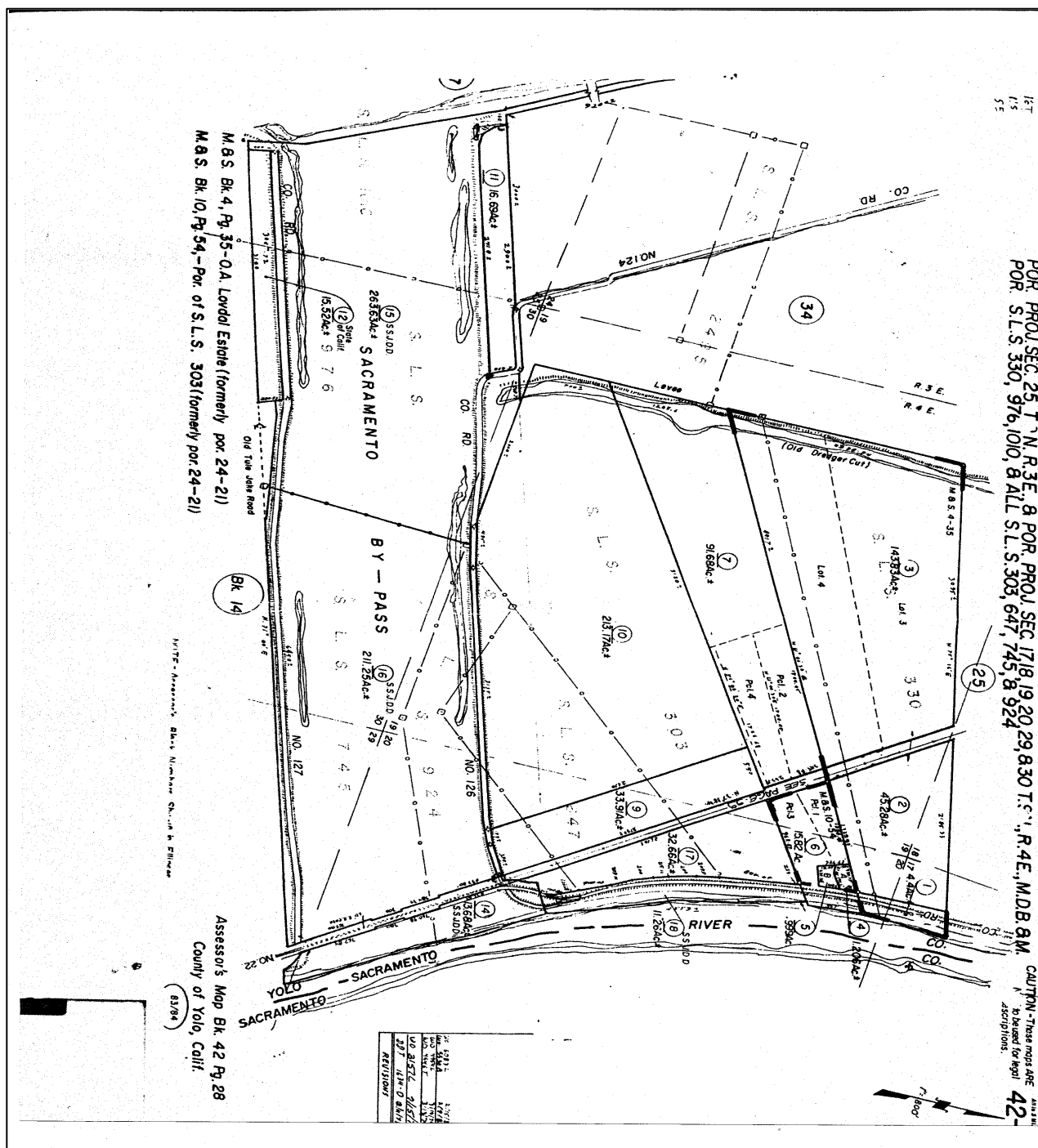
West Sacramento, CA



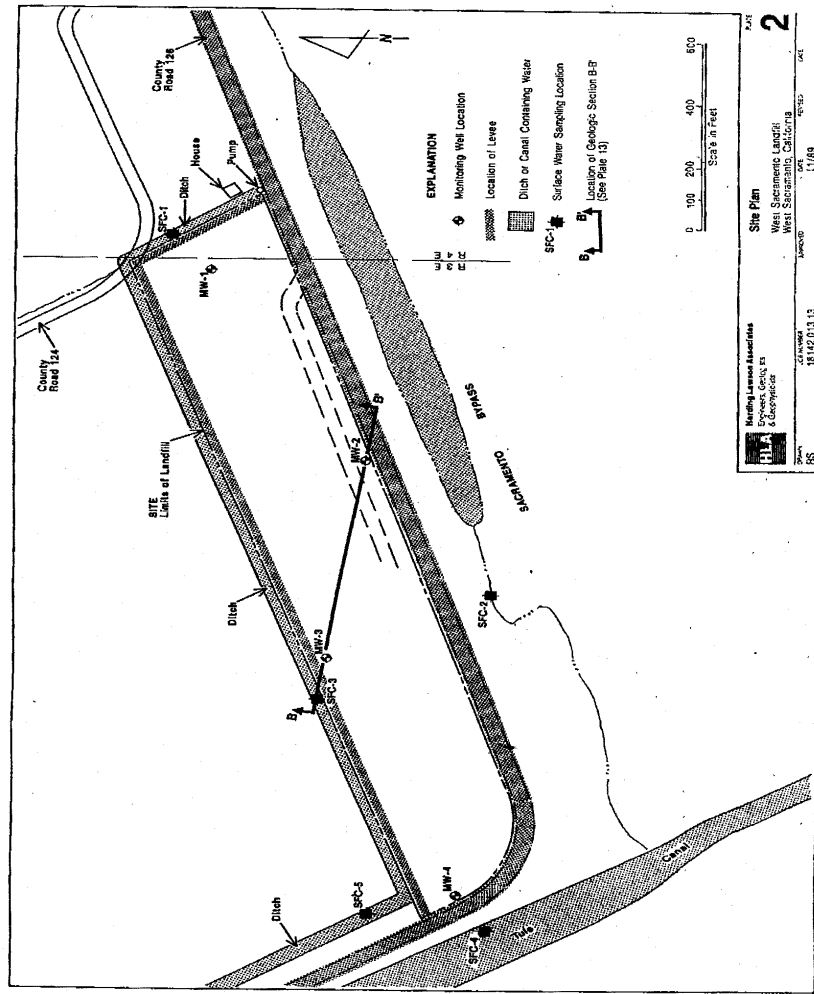
Bryte Quadmap



Bryte Parcel Map



Bryte Parcel Map



MAY-11-07 FRI 09:45 AM FAX NO. P. 02

Bryte Burnsite



1.2 Project Background

The Remediation, Closure and Technical Services (RCTS) Branch, was requested by Yolo County Local Enforcement Agency (LEA) Felix Yeung to perform a phase I and a Phase II investigation to determine appropriate remedial measures necessary to protect public health and safety and the environment.

Information on history of the site is limited, but Yolo County documentation indicates that the site was used for municipal and commercial waste.

The owner of the property prior to landfilling (approximately 1940) was Mrs. Norma Hemm. Landfilling began approximately 1940, under the supervision of Mr. Fred Albercci, who owned Albericci Garbage Service (AGS). AGS was a private garbage service operating in east Yolo County and serving the Cities of Bryte, Broderick, West Sacramento and the surrounding area. Yolo County apparently leased the property from Mrs. Hemm from 1951-1969, and subleased it to Albericci Garbage Service. At some point, garbage disposal functions were assumed by the West Sacramento Sanitary District, later consolidated into the East Yolo County Community Services District, and recently City of West Sacramento. Use of the site as a landfill was terminated in 1974. Yolo and RWQCB records do not indicate whether a state approved closure was undertaken at this time.

The landfill was reportedly used as a burn site. Materials disposed there consisted of residential and commercial solid wastes from east Yolo County area. Wastes were piled, burned, and then leveled. Although the depth of the fill is unknown, reports suggest that the depth of the burned materials should be less than 10 feet. The static water table in the area averages from 12-16 feet depending on location. This information was taken from the boring logs taken by the RWQCB from a Solid Waste Assessment Testing (SWAT) performed in 1989.

Sometime after 1974, Mrs. Hemm leased the property to Mr. Clifford Rose for use as a cardboard recycling storage facility. Mr. Rose abandoned the site, leaving a substantial amount of trash there, mostly consisting of cardboard and wooden pallets.

In June 1986, the RWQCB and the Yolo County Dept of Public Health became interested in cleaning up the trash because it had become a public nuisance. After initial site visits, YCDPH recommended methane testing be performed at the site and prohibited any additional dumping. In Sept. 1987, CIWMB conducted a methane survey: no indication of methane generation was found and the CIWMB determined that no hazard existed related to methane gas.

After subsequent inspections, YCDPH and RWQCB recommended to Mrs. Hemm that she burn all existing waste on the site and remove trash from the adjacent drainage ditch on the north. Both of these tasks were carried out to the satisfaction of the agencies.

In 1987, the Board requiring compliance with the Solid Waste Assessment Test (SWAT) Program imposed two deadlines.

1. The submission of a SWAT proposal by April 1, 1988.
2. The submission of a SWAT Test by June 30, 1989.

On January 2, 1988 Mrs. Bertanga (Mrs. Hemms daughter) wrote requesting an exemption from the SWAT requirements. A letter dated January 13, 1989 was written by David Byers (Mrs. Bertanga's Lawyer) indicating their belief that responsibility for cleanup of the site and the responsibility of the SWAT was that of the County. Since they were the ones who were dumping the waste. Yolo County in a letter dated January 1, 1989 and October 18, 1991 addressed the issue that rents were paid by Yolo County to Mrs. Hemm and Mrs. Bertanga in the amount of one hundred dollars a month up to 1962 then increased to two hundred dollars. Yolo County and Mrs. Bertanga went back and forth over responsibility and cost. A SWAT was performed 1990 By the RWQCB and four monitor wells were put in place. Tests were analyzed and the results were favorable.

In 1994, the Yolo County LEA submitted a notice of violation requesting Mrs. Bertanga to clean up the site. Closed site inspection forms indicated that this site has been in violation of 14 CCR 17710 (Grading of fill surfaces- poor grading and exposed waste. This violation continued on a quarterly basis until 27 CCR regulations were adopted. The violation then became 27 CCR 20650 Grading of fill surfaces-Exposed waste and poor grading. This violation and enforcement was never remediated. The property sold to Baljinder Purwall 1999 and continued to exist in violation.

In a letter dated February 21, 2001, the Yolo County LEA required Mr. Purwall was requested to clean up and properly close the landfill. Mr. Purwall contacted Felix Yeung (Yolo County LEA) as per his request. Felix Yeung contacted the CIA section of the CIWMB and requested assistance in identifying the vertical and horizontal extent of the waste as well as a characterization of soil conditions and finally suggestions for solutions to mitigate.

1.3 Project Purpose

The project purpose is to quantify disposal site conditions and to determine compliance of the site with State minimum standards for security, gas, cover, drainage and erosion control.

The objective of this investigation is to determine the vertical and horizontal extent of the waste and identify waste characteristics. A tracked excavator or backhoe will be utilized to excavate down through the waste to native soil at specified locations (see sampling location map). During trenching activities of specified locations waste/soil samples will be taken to conduct an analysis to determine possible contamination. After samples have been taken, the trenches will be back filled until results have been

analyzed. Based on the results of the analysis, further actions will be determined as needed.

1.4 Responsible Agency

The CIWMB will be responsible for preparing the site investigation and sampling plan, coordinating investigation objectives with the LEA and Yolo County Department of Public Works and coordinating the field investigation and sampling activities with CIWMB contractors. CIWMB staff will oversee field investigation activities, preparation and coordination of the site investigation and sampling and analysis final report and providing the report to the Yolo County LEA, Yolo County Department of Public Works and Baljinder Purwall for further action. CIWMB will also place both the sampling report and site investigation report in Board Files and update the site's Solid Waste Information System (SWIS) database.

1.5 Project Organization

The intrusive investigation and work plan will be prepared and conducted by CIWMB's CIA Section Staff. The CIA Section Senior Engineer, Mr. Glenn K. Young, P.E. will oversee preparation of the work plan and the intrusive investigation (which includes a sampling and analysis plan), soil sampling and analysis activities and preparation of the draft and final intrusive investigation report. The CIWMB's Health and Safety Section will be responsible for preparing a site specific health and safety plan and monitor onsite health and safety issues. As lead on the project Mr. Young may be reached at The California Integrated Management Board 1001 "I" Street, P.O. Box 4025, Sacramento, CA 95812-4025 or by calling (916) 341-6696, FAX: (916) 319-7528.

- Bryan A. Stirrat & Associates (BAS) will provide the Backhoe or Tracked Excavator and a 40 hour Hazwopper trained operator to trench specified areas as indicated In the work plan.
- BAS will also provide a Geologist to log the trenches.
- BAS will provide a surveyor to survey specified trench locations.
- BAS will provide a water truck and operator, which will be used for dust repression and to decontaminate the equipment in between each trenching event.
- CIWMB staff will obtain samples and perform sample packaging, labeling, and shipping to the CIWMB contracted laboratory. The sampling containers and laboratory analysis for the soil samples will be through CIWMB Contract IWM-C9037 with ExcelChem Environmental Laboratories, Inc. in Roseville, CA.

1.6 Previous Investigations

On September 17, 1987, Regional Water Quality Control Board and Yolo County Health Department inspected the Bryte property. On November 3, 1987 Yolo County Health Department wrote the landowner informing her that the property had been deemed a public nuisance and ordered her to clean it up. December 14, 1987 the landowner was given permission to burn the trash to dispose of the rubbish and dispose of the burned waste. A burn plan was issued and the site was cleaned up to the satisfaction of the Water Board and the Health Dept. The letter also required the landowner to have a Solid Waste Assessment Test (SWAT) performed. In 1989-90 a SWAT was performed and the results showed no groundwater contamination. The Waste Board also in 1989 conducted a methane survey and no detectable readings were found.

On April 4, 1994 a letter was written to the 2136 program for consideration in the cleanup program by Craig Walker Yolo County LEA. The Letter reads:

By visual evidence, the landfill is bounded to the south and west by levees of the Sacramento and Yolo Bypass respectively. The landfill is bounded on the north and east by a drainage ditch. A house was noted immediately east of the site. The landfill covers an area of approx 10 to 15 acres.

Waste Materials such as steel, broken glass, tires, automobile parts, and ash are protruding through or lying on top of the landfill surface. Numerous steel drums and cans were noted on the surface of the landfill. None of the containers checked contained any liquids. Illegal dumpings have occurred in the past. However since the beginning of the quarterly inspections of CIA sites, no incidents have been detected. The entrance is blocked with a gate but entrance to the property can be obtained easily by foot.

On November 2, 1995 a SIP was performed by the Yolo County LEA the SIP reads:

1. Disposal area is 16.69 acres
2. Dates of operation 1945-1971
3. Surface condition: Exposed waste throughout the site—metal and inerts
4. Priority given to the site (medium)

Comments on the SIP: Site Owner claims responsibility for site should lie with the County since the County subleased the site to dump operator. County disputes this claim.

Violations on the site have continued from 1997-2001 for 27CCR 20650 Grading of fill surfaces and 27CCR 20830 Litter control, exposed waste.

In 1999 the property was sold to Baljinder Purwall. LEA Felix Yeung sent him a letter February 2001 requiring him to clean up the property and contact him. Mr. Purwall called Mr. Yeung and in turn called the CIWMB.

The formal request for assistance was received April 19, 2001. A site visit was performed 4/25/01 the attendees were: Glenn Young (CIWMB), Dawn Owen (CIWMB), Abel Martinez (CIWMB), Felix Yeung (Yolo County LEA) Linda Sinderson (Yolo County Public Works), Baljinder Purwall (Owner) and Phil Wamberg. It was decided at this point that The CIWMB's Closed, Illegal and abandoned site section would complete a Phase I office investigation and prepare and conduct a Phase II field investigation workplan.

2. Project Objective

2.1 Data Collection

A backhoe or a Tracked excavator will be used to determine: 1) the horizontal and vertical extent of the waste, 2) the physical and chemical characteristics of the waste for comparison to regulatory thresholds. Sampling will be conducted under the California Code of Regulations, Title 22, section 66261.10 et seq. for characterizing hazardous waste. The CIWMB will use regulatory limits established from the California Department of Toxic and Substance Control and federal levels for evaluating the soil/ash. Detailed analytical procedures are specified in section 3.9 of this plan. Since a portion of the burn-ash may need to be disposed of to a municipal solid waste landfill under clean-closure or waste reconfiguration remedial alternatives, it will be necessary to determine if the soil-ash is considered hazardous for the purpose of handling and disposition. The data from these procedures will be used to identify lead concentrations in surface soils and subsurface burn-ash.

2.2 Project Tasks

During the investigation of the Bryte disposal site a sampling location reference grid will be established and tied to an established benchmark at the site. Relocation of planned sampling locations may be performed and the location referenced to the reference grid. Sampling at a location will entail use of the backhoe or tracked excavator, which will dig a trench down to native soil beneath the old fill.

Under the authoritative sampling protocol, the CIWMB field engineer may change individual sampling locations based on site-specific field conditions (including unforeseen obstructions, visible signs of contaminated soils or other factors). CIWMB anticipates that approximately 20-30 sampling locations will be required to adequately define the horizontal and vertical extent of the waste. Soil samples will be screened using a GMI 422 Gas Surveyor instrument and also screened for radioactivity using portable radiation detection equipment and then sent to a State of California certified hazardous waste laboratory for analysis. The trench created by the backhoe will be screened using a GMI 422 Gas Surveyor instrument capable of measuring concentrations of methane, hydrogen sulfide, carbon dioxide, oxygen and carbon monoxide. The trenches will be back-filled with spoils removed during the trenching

process. To ensure the integrity of the Sacramento Bypass levee, Water Resources recommends that trenches that are located near adjacent levees are to be backfilled and compacted to 90% relative compaction. Water Resources also recommends that trench/test pits be located at least 10 feet from the projected (at 3H:1V) subsurface toe of the levee.

2.3 Expected Data

Chemical constituent concentration data obtained during this investigation will be evaluated to determine if additional sampling is necessary. Additional sampling may be performed if it is found that specific constituent levels exceed hazardous levels specified in 22 CCR, e.g. STLC for Lead is much greater than 5 mg/l. Based on information known about the site the following is expected:

- a) Residual concentrations of heavy metals from the burning of solid waste (<1000 mg/kg). Metals detected most likely include lead, copper, nickel, zinc and chrome. Iron and aluminum also may be present.
- b) Waste throughout the surface portion of the site is scattered throughout the surface of the disposal site at varied elevations.
- c) Waste thickness is estimated at between 15-18 feet, however due to the static water levels (11-16 ft) indicated in the SWAT waste thickness could be less.
- d) Analysis of the soil samples may contain levels of pesticides.

3. Sampling Plan

This sampling plan is intended to document the procedural and analytical requirements for this and any subsequent sampling events performed to collect soil and waste samples and to characterize areas of potential contamination from the West Sacramento Brite Landfill. This plan was compiled after reviewing the US Environmental Protection Agency's, Region 9, guidance document "Instructions for the One-time Sampling Event Sampling and Analysis Plan" dated March 1998.

3.1 Sampling Methodology

Discrete sampling will be used to assess the burn ash and surrounding soils. The sampling will be conducted by using a backhoe or tracked excavator to sample locations shown on the sampling grid. Authoritative protocol may be used to allow the investigator the flexibility to move sampling locations, as necessary, to accommodate unforeseen field conditions. The following outline describes the proposed sampling:

- The backhoe or tract excavator will dig 15-20 ft trenches to the length of the site, down to native soil. (Could be more that 10ft depending on the vertical extent of the buried waste). Burn ash and soil samples will be collected using a hand auger and brass sleeves. A total of 52 burn ash samples will be collected from the spoils of the trenches. Each individual trench will have two samples taken; 1 as a discrete sample and 1 that will be grouped with others as a composite.
- Areas will be defined for composting samples for more extensive analysis.
- 16 of the 52 samples are from tentative locations and will be determined on site.
- Two background samples will be taken in order to ensure QA/QC.
- In addition to the 52 samples, 3 samples will be added to composites and tested for dioxins and PAH's (Poly Aeromatic Hydrocarbins)

Each soil sample will be classified and logged by the CIWMB staff and samples will be collected by manual extraction in the trenches or the spoils pile using a hand auger into brass sleeves, covered with Teflon sheeting, and capping the ends. Once capped, the samples will be sealed, labeled and logged and packaged for shipping back to CIWMB laboratory contractor, ExcelChem.

Reusable sampling equipment will be decontaminated between each sampling event by the CIWMB consultant or their subcontractor. Decontamination will follow the procedures outlined in Section 3.5 of this sampling plan. Personnel who collect samples will be required to change their gloves between each sampling event.

3.2 Sampling Equipment

The following equipment will be necessary to perform the sampling

- Backhoe or Tracked Excavator
- Dosimeter
- GMI 422 Gas Surveyor Instrument
- Brass sleeves, Teflon sheeting and caps
- Chain of custody forms and custody seals
- Decontamination equipment (2 ½ -gallon sprayer, non-phosphate detergent, disposable brush, paper towels, cotton towels, polyethylene sheeting)
- Teflon sheeting for sampling tubes
-
- A hammer for driving survey laths
- DI or distilled water for decon rinse
- At least three 5-gal. Buckets for decon of trowels
- Field log book
- Survey laths
- First aid kit and eye wash
- Mailing labels and markers
- Cooler and ice or blue ice
- Packing and duct tape

3.3 Sample Procedures

Burn-ash and soil samples will be collected using a Backhoe or Tracked Excavator and a Hand Auger. At each sample location a Hand Auger will be used to drive the sampling tool (Brass Sleeves) into the spoils excavated from the trenches and then samples will be taken.

Subsurface waste and soil samples will be collected by visually identifying debris and manually inserting the hand auger into the spoils piles and capping the ends of the Brass Sleeves, cover with Teflon Sheeting and seal with plastic cap plugs. Upon completion of sampling at a location the hole will be screened using a GMI 422 Gas Surveyor and a measurement taken for CH₄, CO₂, H₂S, CO and O₂. The hole will then be filled with trenching spoils. We will compact the spoils by having the Tract Excavator make two passes over the filled area.

After each sample is collected it will be placed in a laboratory-supplied container, labeled, logged on the chain-of-custody document, screened for radioactivity, sealed, and stored in an ice chest that is cooled to 4 degrees Fahrenheit. The Ice chest containing the soil samples will be picked up by ExcelChem via courier at 2pm each day.

3.4 Sample Locations

Although sampling locations are proposed in the sampling grid, exact soil sampling locations will be determined in the field based on accessibility, the presence of unforeseen impedances or other factors. Final soil sample locations will be recorded in the field logbook and staked in the field when sampling is completed. A survey crew will locate each sampling location on the final site map. The map will be provided in a final site investigation and sampling and analysis report.

Proposed locations are as follows:

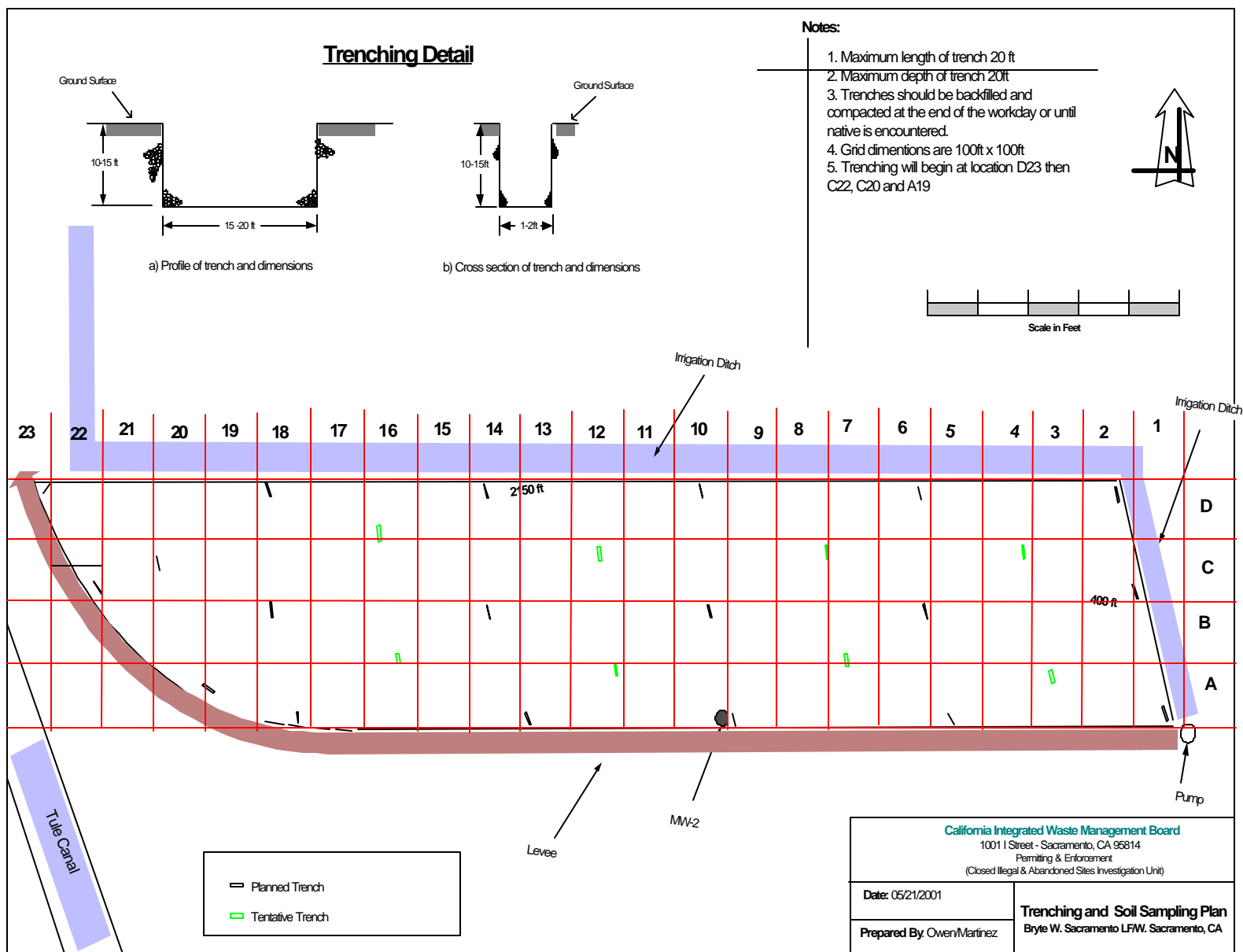
Composite #1, will be comprised of: D23, C22, C20 and A19
Composite #2, will be comprised of: D18, B18 and A18
Composite #3, will be comprised of: D14, B14 and A13
Composite #4, will be comprised of: D10, B10 and A9
Composite #5, will be comprised of: D6, B6 and A5
Composite #6, will be comprised of: D2, C1, A1 and C4 and A3 if tentative locations are chosen to have trenches dug.

If tentative locations are dug then:

Composite #7, will be comprised of: D16 and B16
Composite #8, will be comprised of: C12 and A12
Composite #9, will be comprised of: C8 and B7

Discretes will be taken at all locations

Dioxins and PAH's will be taken at composite areas where burnash is evident, locations will be noted on site.



3.5 Decontamination Procedures

All equipment that comes into contact with potentially contaminated soil/burn ash will be decontaminated in a predesignated area. Disposable equipment intended for one-time use will not be decontaminated, but will be packaged for appropriate disposal. Decontamination will occur prior to and after each use of a piece of equipment. CIWMB staff will decontaminate all sampling devices used, including trowels and augers.

The following decontamination procedures for primary contaminant, inorganic (metals):

Non-phosphate detergent and tap water (bottled water) wash, using a brush if necessary
Tap-water rinse
0.1 N nitric acid rinse
0.2 Deionized/distilled water rinse 2x

3.6 Sample Containers and Preservation

Pre-cleaned containers will be supplied by the laboratory and will not be rinsed prior to sample collection. No preservative will be added to the containers.

3.7 Disposal of Residual Materials

In the process of collecting environmental samples at the West Sacramento Brite Landfill, the CIWMB sampling team will generate different types of potentially contaminated investigation-derived waste (IDW) that may include:

- Used personal protective equipment (PPE)
- Disposable sampling equipment
- Decontamination fluids

The U.S. EPA's National Contingency Plan requires management of IDW generated during sampling comply with all applicable or relevant and appropriate requirements to the extent practicable. The IDW will contain minor residual amount of the soil/burn ash. These wastes are not considered hazardous and will be disposed of at a municipal landfill. Used PPE and disposable equipment will be double bagged and placed in municipal refuse dumpster. Any PPE and disposable equipment that is to be disposed of which can still be used will be rendered inoperable before disposal. Decontamination fluids that will be generated during sampling will consist of nitric acid, deionized water, residual contaminants, and water with non-phosphate detergent. The volume and concentration of the decontamination fluid will be sufficiently low to allow disposal at the site or sampling area. This minimal volume of decontamination fluid will be disposed on site.

If hazardous or radioactive material are found during sampling screening activities, appropriate level of notification and response procedures will be implemented in accordance with the Site Specific Health and Safety Plan.

3.8 Analytes of Concern

Analytes of concern at this site are residual heavy metals from burning solid waste and any unburned organic materials left in the soil matrix.

3.9 Analytical Procedures

We will over sample the burn ash by placing extra soil in a 1 gallon ziplock bag, allow the soil to volatilize for about 5 minutes, and then check the head space in the bag using the GMI 422 Gas Surveyor. After field screening the sample containers will be capped, sealed and labeled (see packaging procedures), and sent to CIWMB's contract laboratory, ExcelChem, where composite samples will be analyzed for CAM 17 metals, pH, reactivity, ignitability, TPH BTEX/Diesel (EPA Method 602/8020/8015m), organochlorine pesticides/PCBs (EPA Method 608/8080) and WET (to determine if STLC is exceeded). Discrete samples will be analyzed for California Assessment Manual (CAM) 5 metals by the Total Test procedure using EPA Method 6010/7000. Samples with the highest concentrations of lead will also be analyzed for CAM-5 metals using the Waste Extraction Test (WET) procedure (EPA Method 6010) to determine if Soluble Threshold Limit Concentration (STLC) limits are exceeded. Also perform Waste Extraction Test using Deionized Water (DI WET) on every lead sample exceeding STLC. If the WET results for any other metal not in the CAM-5 analysis exceed by 10 times the STLC regulatory level, a separate WET analysis for that metal will be performed. Selected burn ash samples will also be tested for semivolatiles (EPA method 8270C). A total of 2 soil samples will be taken and tested for dioxins (EPA method 8280) and PAH's (poly aromatic hydrocarbons) (EPA Method 8270).

3.10 Anticipated Cost

Based on discussions with ExcelChem Analytical Laboratory the following sampling costs are presented:

| EPA METHOD | PARAMETER | UNIT COST | # SAMPLES | COST |
|-------------------|------------------|------------------|------------------|-------------|
| 6010 | CAM 5 Metals | \$50 | 27 | \$1135 |
| 6010/7417 | CAM 17 Metals | \$130 | 9 | \$1170 |
| 22CCR WET | STLC (>10X) | \$60 | 9 | \$540 |
| 22CCR DI WET | STLC (>10X) | \$10 | 9 | \$90 |
| 608/8080 | O-pest/PCBs | \$100 | 9 | \$900 |

| | | | | |
|--------------------|----------------|--------|--------------|-----------------|
| 602/8020/8015 m | TPH/BTEX/d | \$100 | 9 | \$900 |
| 8270 | Semi-Volatiles | \$300 | 9 | \$2700 |
| 8270 | PAH's | \$300 | 3 | \$900 |
| 8280 | Dioxins | \$1100 | 3 | \$3300 |
| | | | Total | \$11,750 |

3.11 Field Quality Control

One field duplicate sample will be collected simultaneously with a standard sample from the same source under identical conditions into a separate sample container. The duplicated sample is treated independently of its counterpart in order to assess laboratory performance through comparison of the results.

The duplicate samples will be collected at a random location that demonstrates elevated levels of metals based on field screening results. Sufficient soil will be collected from the sample location to prepare a primary and duplicate sample from a single batch of soil. The soil sample will be homogenized with a trowel in a sample-dedicated one-gallon disposable pail or a decontaminated stainless steel mixing bowl, and then transferred to each sample container for both regular and duplicate sample analyses. Two background samples will be taken from the area but out side the parameter of the landfill footprint.

3.12 Laboratory Quality Control

The analytical laboratory will perform Quality Control (QC). The QC will include project specific QC, method blank results, laboratory control spike, and matrix spike results.

1. Project Specific QC – No project specific QC has been requested by the CIWMB
2. Method Blank Results – A method blank is a laboratory-generated sample that assesses the degree to which laboratory operations and procedures cause false-positive analytical results for the CIWMB samples. The method blank results associated with the samples will be included with the analytical results.
3. Laboratory Control Spike – A Laboratory Control Spike (LCS) is a sample that is spiked with known analyte concentrations, and analyzed at approximately 10 percent of the sample load in order to establish method-specific control limits. The LCS results associate with CIWMB samples will be attached on the LCS and LCS Duplicated Analysis Report.
4. Matrix Spike Results – A matrix spike is a sample that is spiked with known analyte concentrations and analyzed at approximately 10 percent of the sample load in order

to establish method-specific control limits. The matrix spike results associated with CIWMB samples will be attached on the Matrix Spike and Matrix Spike Duplicate Analysis Report.

5. Accuracy – Accuracy will be measured by percent recovery as defined by:

$$\% \text{ Recovery} = \frac{(\text{measured concentration}) \times 100}{(\text{Actual concentration})}$$

4. Documenting and Reporting

4.1 Field Notes

A field logbook will be used to document the vital project and sample information. At a minimum, the following sample information will be recorded:

- Sample location and description
- Site or sample area sketch showing sample location and measured distances
- Sampler's name(s)
- Date and time of sample collection
- Designation of sample as composite or grab
- Type of sample (soil, sediment or water)
- Type of sampling equipment used
- Field instrument reading, if applicable
- Field observations and details related to analysis or integrity of samples (e.g., weather conditions, noticeable odors, colors, etc.)
- Preliminary sample descriptions
- Sample preservation
- Sample identification numbers and explanatory code
- Name of recipient laboratory

In addition to the sampling information, the following specific information will also be recorded in the logbook:

- Team members and their responsibilities
- Time of arrival and departure
- Deviations from the sampling plan
- Level of health and safety protection

4.2 Photographs

Photographs will be taken at the sampling location and at surrounding areas. The photos will verify information entered in the field logbook. Each photo taken will be written in the logbook with the approximate time, date, and location.

4.3 Labeling

All samples collected will be labeled in a clear and precise way for proper identification for tracking in the laboratory. Each sample will reference the sample date, the type of sample (S – surface; B – subsurface), and the sample point identification as shown on the pin flag.

4.4 Chain-of-Custody

A chain-of-custody record will accompany all sample shipments. Shipped samples will have a custody seal placed across the lid of each sample container. All custody seals will be signed and dated.

4.5 Packaging and Shipment

All sample containers will be placed in a strong-outside shipping container and will have the drain plug sealed, if applicable, to prevent melted ice from leaking out of the cooler. If ice is used to cool the samples, we will pack the soil samples in a double ziplock bag to prevent moisture from contaminating the sample. Special care will be provided to secure and prevent damage to the sample containers.

4.6 Reporting

Once the analytical results are received and evaluated, CIWMB will prepare a sampling report describing the nature of the waste and discuss the analytical results. The CIWMB anticipates submitting the sampling report to the LEA and YCDPW within 30 days after receipt of the analytical results. We will also forward a completed copy to the Department of Water Resources.